

**INFORMATION
DISCLOSURE
CITATION**

Applicant: Kui-Chiu KWOK

Title: "Meltblowing Method and Apparatus"

Serial No.:

Group: 1732

Filing Date: 18 March 2000

L. Tentoni

16530 U.S. PRO
10952857

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U.S. PATENTS & APPLICATIONS

Initial *	Document Number								Date	Inventors	Class	Subclass	Filing Da.
AA	R	E	3	3	4	8	1		11 Dec 90	Zeicker et al.	239	298	#3
AB	2	2	1	2	4	4	8		20 Aug 40	Modigliani	65	30341	454
AC	2	2	9	7	7	2	6		2 Apr 42	Stephanoff	34	361	
AD	2	6	2	8	3	8	6		17 Feb 53	Tornberg	425	190	
AE	3	2	1	3	1	7	0		19 Oct 65	Erdmenger et al.	264	142	
AF	3	3	3	4	7	9	2		8 Aug 67	De Vries et al.	425	87	
AG	3	4	8	8	8	0	6		13 Jan 70	De Cecco et al.	425	463	
AH	3	6	5	0	8	6	6		21 Mar 72	Prentice	264	345	
AI	3	7	0	4	1	9	8		28 Nov 72	Prentice	428	198	
AJ	3	7	5	5	5	2	7		28 Aug 73	Keller et al.	264	518	
AK	3	8	2	5	3	7	9		23 Jul 74	Lohkamp et al.	425	72,2	
AL	3	8	4	9	2	4	1		19 Nov 74	Butin et al.	428	137	
AM	3	8	6	1	8	5	0		21 Jan 75	Wallis	425	461	
AN	3	8	7	4	8	8	6		1 Apr 75	Levecque et al.	501	35	
AO	3	9	2	0	3	6	2		18 Nov 75	Bradt	425	72,2	
AP	3	9	4	2	7	2	3		9 Mar 76	Langdon	239	135	
AQ	3	9	4	7	5	3	7		30 Mar 76	Buntin et al.	264	137	
AR	3	9	7	0	4	1	7		20 Jul 76	Page	425	72,2	
AS	3	9	7	8	1	8	5		31 Aug 76	Buntin et al.	264	518	
AT	4	0	1	5	9	6	3		5 Apr 77	Levecque et al.	65	467	
AU	4	0	1	5	9	6	4		5 Apr 77	Levecque et al.	65	467	
AV	4	0	5	0	8	6	6		27 Sep 77	Kilsdonk	425	192	
AW	4	0	5	2	1	8	3		4 Oct 77	Levecque et al.	65	450	
AX	4	1	0	0	3	2	4		11 Jul 78	Anderson et al.	442	344	
AY	4	1	4	5	1	7	3		20 Mar 79	Pelzer et al.	425	224	
AZ	4	1	8	9	4	5	5		19 Feb 80	Raganato et al.	264	12	

EXAMINER:

Joseph S. Del Sole

DATE CONSIDERED: 9/5/03

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**INFORMATION
DISCLOSURE
CITATION**

Applicant: Kui-Chiu KWOK

Title: "Meltblowing Method and Apparatus"

Serial No.: 09/528357

Group: 1732

Filing Date:

L. Tentoni

U.S. PATENTS & APPLICATIONS

Initial *		Document Number						Date	Inventors	Class	Subclass	Filing Date
<i>yed</i>	AA	4	2	7	7	4	3	6	7 Jul 81	Shah et al.	264	518
	AB	4	3	0	0	8	7	6	17 Nov 81	Kane et al.	425	66
	AC	4	3	4	0	5	6	3	20 Jul 82	Appel et al.	264	518
	AD	4	3	5	9	4	4	5	16 Nov 82	Kane et al.	264	518
	AB	4	3	8	0	5	7	0	19 Apr 83	Schwarz	442	350
	AF	4	5	2	6	7	3	3	2 Jul 85	Lau	264	12
	AO	4	6	4	5	4	4	4	24 Feb 87	Lenk et al.	425	1923
	AH	4	7	0	8	6	1	9	24 Nov 87	Balk	348	351
	AI	4	7	8	5	9	9	6	22 Nov 88	Ziecker et al.	239	29.8
	AJ	4	8	1	8	4	6	3	4 Apr 89	Buehning	264	40.1
	AK	4	8	1	8	4	6	4	4 Apr 89	Lau	264	510
	AL	4	8	8	9	4	7	6	26 Dec 89	Buehning	425	30114
	AM	4	9	2	3	7	0	6	8 May 90	Binley et al.	425	744
	AN	4	9	8	3	1	0	9	8 Jan 91	Miller et al.	425	7
	AO	4	8	7	4	4	5	1	17 Oct 89	Boger et al.	156	291
	AP	5	0	6	6	4	3	5	19 Nov 91	Lorenz et al.	425	40.5
	AQ	5	0	9	8	6	3	6	24 Mar 92	Balk	264	555
	AR	5	1	4	5	6	8	9	8 Sep 92	Allen et al.	425	72.2
	AS	5	1	6	5	9	4	0	24 Nov 92	Windley	425	72.2
	AT	5	2	6	9	6	7	0	14 Dec 93	Allen et al.	425	72.2
	AU	5	4	2	1	9	2	1	6 Jun 95	Gill et al.	156	62.4
	AV	5	4	4	5	5	0	9	29 Aug 95	Allen et al.	425	72.2
	AW	5	4	5	8	7	2	1	17 Oct 95	Raterman	239	423
	AX	5	4	5	8	2	9	1	17 Oct 95	Brusko et al.	156	291
	AY	5	4	7	8	2	2	4	26 Dec 95	McGuffey	425	7
✓	AZ	5	5	4	0	8	0	4	30 Jul 96	Raterman	156	500

EXAMINER: *Joseph S. Del Sole*

DATE CONSIDERED: 9/5/03

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Attorney Docket No.: 8010 - 61

Page 3 of 7

**INFORMATION
DISCLOSURE
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Applicant: Kui-Chiu KWOK

Title: "Meltblowing Method and Apparatus"

Serial-No.: 09/528,357

Exr. L. Tentoni

Filing Date:

Group: 1732

U.S. PATENTS & APPLICATIONS

Initial		Document Number							Date	Inventor	Class	Subclass	Filing Date
AA	R	E	3	3	1	5	8	6 Feb 90	Stouffer et al.	239	589.1		
AB	R	E	3	3	1	5	9	6 Feb 90	Bauer	239	589.1		
AC	R	E	3	3	4	4	8	20 Nov 90	Bauer	239	11		
AD	R	E	3	3	6	0	5	4 Jun 91	Bauer	239	589.1		
AB	4	0	0	7	6	2	5	15 Feb 77	Houben et al.	239	24.01		
AF	4	0	5	2	0	0	2	4 Oct 77	Stouffer et al.	239	4		
AO	4	1	5	1	9	5	5	1 May 79	Stouffer	239	11		
AH	4	5	9	6	3	6	4	24 Jun 86	Bauer	239	589.1		
AI	4	6	9	4	9	9	2	22 Sep 87	Stouffer	239	265.23		
AL	4	9	0	5	9	0	9	6 Mar 90	Woods	239	589.1		
	4	9	5	5	5	4	7	11 Sep 90	Woods	239	589.1		
	5	0	3	5	3	6	1	30 Jul 91	Stouffer	239	589.1		
V	5	1	2	9	5	8	5	14 Jul 92	Bauer	239	589.1		

FOREIGN PATENTS & PUBLICATIONS

		Document Number							Date	Country	Class	Translation Yes	No	
AM		7	-	5	-	6	-	9	0	7	12 Sep 56	Great Britain		
AN		1	3	9	2	6	-	6	7	30 Apr 75	Great Britain			
AO	W	9	1	5	8	9	5	19 Aug 93	PCT					
O	3													

OTHER DOCUMENTS (Author, Title, Date and Pages)

AR Nonwovens World Magazine, "Meltblown Technology Today", 1989, pages 1-158.

AS The New Non-Wovens World, "Developments in Melt Blowing Technology", Summer 1993, pages 73-82.

AT

EXAMINER: Joseph Szedel Sole

DATE CONSIDERED: 9/5/03

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Atty. Docket No. 8010-61

Page 4 of 7

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Applicant: Kui-Chiu KWOK

Title: "Meltblowing Method and Apparatus"

Appl. No.: 09/528,357 Art Unit 1732

Filing Date: Filing Date: Exr. Leo Tentoni

U.S. PATENTS & APPLICATIONS

Initial		Document Number	Date	Inventor	Class	Subclass	Filing Date
AA	5 0 6 9 8 5 3	3 Dec 91	Miller	264	176.1		
AB	5 0 9 4 7 9 2	10 Mar 92	Baran	264	171.17		
AC	5 2 6 0 0 0 3	9 Nov 93	Nyssen et al.	264	6		
AD	5 4 2 1 9 2 1	6 Jun 95	Gill et al.	156	62.4		
AE	5 5 0 3 7 8 4	2 Apr 96	Balk	264	40.3		
AF	5 6 7 9 3 7 9	21 Oct 97	Fabbricante et al.	429	7		
AG							
AH							
AJ							
AL							

FOREIGN PATENTS & PUBLICATIONS

		Document Number	Date	Country	Class	Translation Yes	No
AM	4 4 1 6 1 6 8	Jul 69		Japan			
AN							
AO							
AP							
AQ							

OTHER DOCUMENTS (Author, Title, Date and Pages)

AR	Gregory F. Ward, "Micro-Denier Nonwoven Process and Fabrics", on or about 17 Oct 97, pgs. 1-9.
AS	
AT	
EXAMINER:	DATE CONSIDERED:
<i>Joseph S. Del Sole</i>	<i>9/5/03</i>
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Title: "Meltblowing Method and Apparatus"

Appl. No.: 09/528,357

Art Unit 1732

Filing Date:

Exr. Leo Tentoni

U.S. PATENTS & APPLICATIONS

Initial *	Document Number							Date	Inventors	Class	Subclass	Filing Date
190	AA	2	0	3	1	3	8	7	30 Nov 34	Schwarz	425	463
	AB	3	0	3	8	2	0	2	12 Jun 62	Harkenrider	425	464
	AC	3	1	7	6	3	4	5	6 Apr 65	Powell	425	131.5
	AD	3	1	7	8	7	7	0	20 Apr 65	Willis	425	76
	AB	3	1	9	2	5	6	2	6 Jul 65	Powell	425	131.5
	AF	3	1	9	2	5	6	3	6 Jul 65	Crompton	425	462
	AG	3	2	0	4	2	9	0	7 Sep 65	Crompton	425	190
	AH	3	2	5	3	3	0	1	31 May 66	McGlaughlin	425	461
	AI	3	3	8	0	1	2	8	30 Apr 68	Cremer et al.	425	382R
	AJ	3	4	9	2	6	9	2	3 Feb 70	Soda et al.	264	209.2
	AK	3	5	0	1	8	0	5	24 Mar 70	Douglas, Jr. et al.	425	131.5
	AL	3	6	1	3	1	7	0	19 Oct 71	Soda et al.	425	463
	AM	3	9	2	3	4	4	4	2 Dec 75	Esper et al.	425	461
	AN	3	9	8	1	6	5	0	21 Sep 76	Page	425	72.2
	AO	4	1	8	5	9	8	1	29 Jan 80	Ohsato et al.	65	466
	AP	4	4	5	7	6	8	5	3 Jul 84	Huang et al.	425	461
	AQ	4	6	5	2	2	2	5	24 Mar 87	Dehennau et al.	425	133.1
	AR	4	7	4	6	2	8	3	24 May 88	Hobson	425	528
	AS	4	7	4	7	9	8	6	31 May 88	Chao	264	177.11
	AT	4	8	1	2	2	7	6	14 Mar 89	Chao	264	177.11
	AU	4	8	1	8	4	6	4	4 Apr 89	Lau	264	510
	AV	5	0	1	3	2	3	2	7 May 91	Way	425	192R
	AW	5	0	6	7	8	8	5	26 Nov 91	Stevenson et al.	425	131.1

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Joseph S De/Soto

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Exr. L. Tentoni

Filing Date:

Art Unit 1732

U.S. PATENTS & APPLICATIONS

Initial		Document Number						Date	Inventor	Class	Subclass	Filing Date
V	AA	4	9	4	9	6	6	8	21 Aug 91	Heindel et al.	118	314
	AB	4	9	8	3	1	0	9	8 Jan 91	Miller et al.	425	7
	AC	5	0	1	7	1	1	6	21 May 91	Carter et al.	425	131.5
	AD	5	1	4	5	6	8	9	8 Sep 92	Allen et al.	425	72.2
	AE	5	2	6	9	6	7	0	14 Dec 93	Allen et al.	425	72.2
	AF	5	3	4	2	6	4	7	30 Aug 94	Heindel et al.	427	2.31
	AG	5	3	5	4	3	7	8	11 Oct 94	Hauser et al.	118	696
	AH	5	4	0	9	7	3	3	25 Apr 95	Boger et al.	427	96
	AI	5	4	1	8	0	0	9	23 May 95	Raterman et al.	427	207.1
	AJ	5	4	2	1	9	4	1	6 Jun 95	Allen et al.	156	244.11
	AK	5	4	2	3	9	3	5	13 Jun 95	Benecke et al.	156	291
	AL	5	4	2	9	8	4	0	4 Jul 95	Raterman et al.	425	256
	AM	5	4	4	5	5	0	9	29 Aug 95	Allen et al.	425	72.2
	AN	5	5	2	4	8	2	8	11 Jun 96	Raterman et al.	239	413
	AO	5	5	3	3	6	7	5	9 Jul 96	Benecke et al.	239	413
	AP	5	6	0	5	7	0	6	25 Feb 97	Allen et al.	425	72.2
V	AQ	5	6	2	0	1	3	9	15 Apr 97	Ziecker	239	124

FOREIGN PATENTS & PUBLICATIONS

		Document Number	Date	Country	Class	Translation Yes	Translation No
	AR						

OTHER DOCUMENTS (Author, Title, Date and Pages)

AS		
EXAMINER:	Joseph S. Tolul Sode	DATE CONSIDERED: 9/5/03

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Title: "Meltblowing Method and Apparatus".

Appl. No. 09/528,357

Filing Date: Art Unit 1732

U.S. PATENTS & APPLICATIONS

OTHER DOCUMENTS (Author, Title, Date and Pages)

<i>JK</i>	AK	Edward J. McNally et al., J&M Laboratories, "Durafiber/Durastitch Adhesives Applications Method featuring Solid State Application Technology" disclosed 8 September 1997 at Inda-Tec 97 Meeting, Cambridge MA, pgs. 26.1-26.8.
<i>JK</i>	AL	Scott R. Miller, Beyond Meltblowing: Process Refinement in Microfibre Hot melt adhesive Technology, Edana 1998 International Nonwovens Symposium, 11 pgs.
<i>JK</i>	AM	Rajiv S. Rao et al., "Vibration and Stability in the Melt Blowing Process", Ind. Eng. Chem. Res., 1993, 32, 3100-3111.

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9/5/03

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**SUPPLEMENTAL
INFORMATION
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CITATION**

APR 06 2000

Applicant: KWOK

Title: "Meltblowing Method and Apparatus"

Appl. No.: 09/528,357 Exe. L. Tentoni

Filing Date: 18 March 2000

Art Unit: 1732

U.S. PATENTS & APPLICATIONS

Initial		Document Number							Date	Inventor	Class	Subclass	Filing Date
AA		3	8	0	6	2	8	9	1974	Schwarz	425	72.2	#4
AB		3	9	5	4	3	6	1	1976	Page	425	72.2	
AC		5	4	7	6	6	1	6	Dec. 1995	Schwarz	264	6	
AD													
AE													
AF													
AG													
AH													
AI													
AJ													
AK													

FOREIGN PATENTS & PUBLICATIONS

		Document Number							Date	Country	Class	Translation Yes No
AL	W092	0	7	1	2	2	1992		WIPO Publication			
AM	092											
AN												
AO												
AP												

OTHER DOCUMENTS (Author, Title, Date and Pages)

AQ	
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EXAMINER:	Joseph S. Zellos
	DATE CONSIDERED: 9/5/03

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Atty. Docket No. 8010-61

Page 1 of 1

**SECOND
SUPPLEMENTAL
INFORMATION
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CITATION**

Applicant: KWOK

Title: "Meltblowing Method And Apparatus"

Appl. No.: 09/528,357

Exr. L. Tentoni

Filing Date: 18 March 2000

Art Unit: 1732

**U.S. PATENTS & APPLICATIONS**

Initial	Document Number	Date	Inventor	Class		Subclass Filing Date					
				5	3	1	2	5	0	0	0
AB		1994	Kurihara et al.								156 624
AC											
AD											
AE											
AF											
AG											
AH											
AI											
AJ											
AK											

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FOREIGN PATENTS & PUBLICATIONS

		Document Number	Date	Country	Class	Translation Yes	Translation No
AL	1 97 1 5 7 4 0	1998	Germany				
AM							
AN							
AO							
AP							

OTHER DOCUMENTS (Author, Title, Date and Pages)

AQ	
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AS	

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**INFORMATION
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JUN 18 2001

Applicant: KWOK
Title: "Meltblowing Method And Apparatus"

Appl. No.: 09/528,357

Examiner L. Antoni

Filing Date: 18-March-2000

Art Unit 1741-2 Sub A

U.S. PATENTS & APPLICATIONS

Initial		Document Number							Date	Inventor	Class	Sub Class	Priority Date
139	AA	6	2	3	5	1	3	7	May 2001	Van Eperen et al.	156	176	22 Aug 1998
139	AB	5	9	6	4	9	7	3	1999	Heath	156	161	
139	AC	5	2	7	5	6	7	6	1994	Rooyakkers et al.	156	164	
139		4	9	6	0	6	1	9	1990	Slautterback et al.	427	265	
139	AD	4	8	4	4	0	0	3	1989	Slautterback et al.	123	383	
139	AE	4	8	4	2	6	6	6	1989	Werenicz	156	161	
139	AF	4	7	1	1	6	8	3	1987	Merkatoris	156	164	
	AG												
	AH												
	AI												
	AL												

FOREIGN PATENTS & PUBLICATIONS

		Document Number	Date	Country	Class	Translation Yes	No
	AM						
	AN						
	AO						
	AP						
	AQ						

OTHER DOCUMENTS (Author, Title, Date and Pages)

139	AR	Today's Idea, "Nordson Unveils Diaper Elastic System", October 1988, 1 pg.
139	AS	Nordson, "Adhesive And Powder Application Systems For the Non-Wovens Industry", 1992, 7 pgs.
	AT	

EXAMINER:

Joseph S. Zabel

DATE CONSIDERED:

9/5/03

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**SUPPLEMENTAL
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Applicant: KWOK

Title: "Meltblowing-Method-and-Apparatus"

Appl. No.: 09/528,357

Exe.

Filing Date: 18 March 2000

Art Unit: 1732

U.S. PATENTS & APPLICATIONS

Initial*	Document Number							Date	Inventor	Class	Subclass Filing Date	
	A	B	C	D	E	F	G					
JG	A	5	6	6	7	7	5	0	1997	Nohr	264	555
	AB											
	AC								DEC 16 2003			
	AD								TC 1700			
	AE											
	AF											
	AG											
	AH											
	AI											
	AJ											
	AK											

FOREIGN PATENTS & PUBLICATIONS

	Document Number							Date	Country	Class	Translation Yes No	
BD	AL	W	9	1	5	8	9	5	1993	WIPO Publication	X	
JG	AM	-	7	5	6	9	0	7	1956	UK	X	X
JG	AN	1	3	9	2	6	6	7	1975	UK	X	
	AO											
	AP											

OTHER DOCUMENTS (Author, Title, Date and Pages)

AQ	
AR	
AS	

EXAMINER:

Joseph S. Goldstein

DATE CONSIDERED:

2/10/04

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